

| Pushing the Envelope | | | |
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| 2006 Science | | | |
| Grade Level and Grade Span Expectations | | | |
| Rhode Island Science | | | |
| Grades 5-6 | | | |
| Activity/Lesson | State | Standards | |
| Types of Engines (pgs. 11-23) | RI | SCI.5-6.PS3 (5-6)–8a | The motion of an object is affected by forces: using data or graphs to compare the relative speed of objects. |
| Types of Engines (pgs. 11-23) | RI | SCI.5-6.PS3 (5-6)–8c | The motion of an object is affected by forces: explaining that changes in speed or direction of motion are caused by forces. |
| Chemistry (pgs. 25-41) | RI | SCI.5-6.PS1 (5-6)–2a | Recognizing that different substances have properties, which allow them to be identified regardless of the size of the sample. |
| Chemistry (pgs. 25-41) | RI | SCI.5-6.PS1 (5-6)–4a | Differentiating among the characteristics of solids, liquids, and gases. |
| Chemistry (pgs. 25-41) | RI | SCI.5-6.PS1 (5-6)–4b | Predicting the effects of heating and cooling on the physical state, volume and mass of a substance. |
| Physics and Math (pgs. 43-63) | RI | SCI.5-6.PS3 (5-6)–8b | Recognizing that a force is a push or a pull. |
| Physics and Math (pgs. 43-63) | RI | SCI.5-6.PS3 (5-6)–8c | Explaining that changes in speed or direction of motion are caused by forces. |
| Rocket Activity (pgs. 69-75) | RI | SCI.5-6.PS3 (5-6)–8b | Recognizing that a force is a push or a pull. |
| Rocket Activity (pgs. 69-75) | RI | SCI.5-6.PS3 (5-6)–8c | Explaining that changes in speed or direction of motion are caused by forces. |
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| 2006 Science | | | |
| Grade Level and Grade Span Expectations | | | |
| Rhode Island Science | | | |
| Grades 7-8 | | | |
| Activity/Lesson | State | Standards | |
| Types of Engines (pgs. 11-23) | RI | SCI.7-8.PS3 (7-8)–8d | Making and testing predictions on how unbalanced forces acting on objects change speed or direction of motion, or both. |
| Types of Engines (pgs. 11-23) | RI | SCI.7-8.PS3 (7-8)–8e | Describing or graphically representing that the acceleration of an object is proportional to the force on the object and inversely proportional to the object's mass. |
| Chemistry (pgs. 25-41) | RI | SCI.7-8.PS1 (7-8)–2a | Identifying an unknown substance given its characteristic properties. |
| Chemistry (pgs. 25-41) | RI | SCI.7-8.PS1 (7-8)–2b | Classifying and comparing substances using characteristic properties (e.g., solid, liquid, gas; metal, non-metal). |
| Chemistry (pgs. 25-41) | RI | SCI.7-8.PS1 (7-8)–5b | Classifying common elements and compounds using symbols and simple chemical formulas. |
| Chemistry (pgs. 25-41) | RI | SCI.7-8.PS1 (7-8)–5c | Interpreting the symbols and formulas of simple chemical equations. |

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| Physics and Math (pgs. 43-63) | RI | SCI.7-8.PS3 (7-8)–8d | Making and testing predictions on how unbalanced forces acting on objects change speed or direction of motion, or both. |
| Physics and Math (pgs. 43-63) | RI | SCI.7-8.PS3 (7-8)–8e | Describing or graphically representing that the acceleration of an object is proportional to the force on the object and inversely proportional to the object's mass. |
| Rocket Activity (pgs. 69-75) | RI | SCI.7-8.PS3 (7-8)–8d | Making and testing predictions on how unbalanced forces acting on objects change speed or direction of motion, or both. |
| Rocket Activity (pgs. 69-75) | RI | SCI.7-8.PS3 (7-8)–8e | Describing or graphically representing that the acceleration of an object is proportional to the force on the object and inversely proportional to the object's mass. |
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| 2006 Science | | | |
| Grade Level and Grade Span Expectations | | | |
| Rhode Island Science | | | |
| Grades 9-11 | | | |
| Activity/Lesson | State | Standards | |
| Types of Engines (pgs. 11-23) | RI | SCI.9-11.PS3 (9-11)–8b | Using modeling, illustrating, graphing explain how distance and velocity change over time for a free falling object. |
| Types of Engines (pgs. 11-23) | RI | SCI.9-11.PS3 (9-11)–9a | Explaining through words, charts, diagrams, and models the effects of distance and the amount of mass on the gravitational force between objects (e.g. Universal Gravitation Law). |
| Chemistry (pgs. 25-41) | RI | SCI.9-11.PS1 (9-11)–1a | Utilizing appropriate data (related to chemical and physical properties), to distinguish one substance from another or identify an unknown substance. |
| Chemistry (pgs. 25-41) | RI | SCI.9-11.PS1 (9-11)–1b | Determining the degree of change in pressure of a given volume of gas when the temperature changes incrementally (doubles, triples, etc.). |
| Physics and Math (pgs. 43-63) | RI | SCI.9-11.PS3 (9-11)–8a | Predicting and/or graphing the path of an object in different reference planes and explain how and why (forces) it occurs. |
| Physics and Math (pgs. 43-63) | RI | SCI.9-11.PS3 (9-11)–9b | Using Newton's Laws of Motion and the Law of Conservation of Momentum to predict the effect on the motion of objects. |
| Rocket Activity (pgs. 69-75) | RI | SCI.9-11.PS3 (9-11)–8a | Predicting and/or graphing the path of an object in different reference planes and explain how and why (forces) it occurs. |
| Rocket Activity (pgs. 69-75) | RI | SCI.9-11.PS3 (9-11)–9b | Using Newton's Laws of Motion and the Law of Conservation of Momentum to predict the effect on the motion of objects. |